



Gemini Microcomputers

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GEMINI GM825 DISK SUB-SYSTEM

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The GM825 Disk System has been extensively tested and is subject to our standard warranty. The unit should be registered immediately by filling in Sections 1 and 2 below, and returning Section 2 to Gemini Microcomputers at the above address. Should the disk system develop any fault, it should be returned to a Gemini dealer together with Section 1 below. This will be kept on file and further relevant information may be circulated from time to time.

Where CP/M or Polydos 4 has been supplied, the master disk has been verified. This diskette should be copied by the user and then stored in a safe place. If the master disk becomes corrupted it should be returned to Gemini Microcomputers for replacement. There will be a charge for this service.

Section 1

GM825

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Date of purchase Purchased from

Disk Unit Serial Number GM825

Single/Double Drive Unit Polydos / CP/M Option

CP/M Master Disk Serial Number 2248 -

Polydos Master Disk Serial Number

Section 2

GM825

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Name :

Address :

Distributor Stamp (or name)

Disk Unit Serial Number GM825 Date of purchase

Single/Double Drive Unit Polydos / CP/M option

CP/M / Polydos Disk Serial Number (2248)

GEMINI GM825 DISK DRIVE SUB-SYSTEM

Introduction

The Gemini GM825 is a 5.25" disk drive sub-system for use with Gemini or Nascom systems fitted with the Gemini GM809 FDC or GM829 FDC/SASI boards. It contains a linear power supply that will power either one or two drives and is available in four different versions:

GM825-1S	- One 400 Kbyte (formatted) Micropolis 1015F5 drive
GM825-2S	- Two " " " " drives
GM825-1D	- One 800 Kbyte (formatted) Micropolis 1015F6 drive
GM825-2D	- Two " " " " drives

Installation

The GM825 is supplied with a mains cable and a 34-way controller card interconnect cable. The mains cable is fitted with an IEC type connector on one end and a mains plug should be fitted on the other end. The cable is to standard European specification - i.e. green/yellow is earth, blue is neutral, brown is live. A low current fuse should be fitted, say 3 Amp.

The 34-way cable should be connected between the rear of the GM825 unit and the GM809 or GM829 FDC cards, ensuring that it is connected with the correct orientation. On the 34-way cable pin 1 is identified by the red strand and by triangular indentations on each of the connectors. On the rear of the GM825 pin 1 is identified by another triangular indentation, and on the FDC card by both a triangular indentation and a '1' on the board's silk-screen.

Setting up GM809/GM829 link options

The FDC card should be checked to ensure that the link options have been set correctly for Micropolis 1015 type drives. On the GM809 all links are set by hard-wiring, on the GM829 all normal linking is done by PCB tracking on the underside of the board which must be cut and then hard-wired if another option is required.

For normal GM809/GM825 operation on a Gemini or Nascom system running at 4MHz:

Link 1	- A-B	(for 5.25" drives and 4MHz system clock)
Link 2	- A-B and C-D	(for drives with pin 6=RDY, pin 34=DS4)
Link 3	- Insert link	(" " " " ")
Link 4	- A-C	(for write precompensation on tracks 43+)
Link 5	- A-B	(for locating board at ports EO-E4)
Link 6	- Insert link	(for Nascom systems requiring NASIO signal)
Link 7	- A-B	(for system with 2MHz or 4MHz system clock)

For normal GM829/GM825 operation on a Gemini or Nascom system running at 4MHz:
(on Issue 1 and 2 GM829 boards the links are already set as follows)

✓ Link 1	- A-B and C-D	(for drives with pin 6=RDY, pin 34=DS4)
✓ Link 2	- A-B	(for 4MHz system clock)
Link 3	- Insert link	(for drives with pin 6=RDY)
✓ Link 4	- A-B and A-D	(for write precomp. on tracks 43+ on 5.25 & 8")
✓ Link 5	- A-B	(for locating board at ports EO-E7)
✓ Link 6	- A-B	(for system with 2MHz or 4MHz system clock)
Link 7	- No link	(for SASI interface, see GM829 manual)

Drive selection

The GM825 is delivered with the left hand drive configured as drive A, and the right hand drive (if fitted) as drive B. This can be changed quite easily if required. On the disk drive PCB there is an eight pin link block (marked 'J9') fitted with a jumper strap. Inserting the strap between the pair of contacts closest to the 'J9' marking will select that drive as drive A, the next pair as drive B, then C, and inserting the strap in the pair furthest from the 'J9' marking will select that drive as drive D.

Each drive is supplied fitted with a terminating resistor pack. Only one such pack should be fitted in any system, and that should be on the drive attached to the end of the 34-way cable furthest away from the GM809/GM829 controller card. Consequently all GM825s are supplied with the resistor pack installed in drive A and in twin drive GM825s there is no resistor pack in drive B. The resistor pack can be found fitted in line with pin 24 of the 34-way edge of card connector on the drive. It is a SIL (single in line) package of 10 pins, with pin 1 marked at one end by a white dot. It should be installed with this dot towards the 34-way connector

NOTE: In systems with a Winchester hard disk drive installed the Winchester may be configured as drive A, or even as more than one drive. This configuration is done in the software, and, for example, the floppy disk drives may still be linked as A and B even though they are used as B and C. See the manual supplied with the Winchester unit and software for further details.

Upgrading a GM825-1 to a GM825-2

All GM825s are supplied with the necessary cable assemblies for the fitting of two drives. If a GM825-1 is to be upgraded to a GM825-2 then the following steps should be taken. (It is assumed that the drives are to be set as A and B. If not, see above.)

1. Purchase a Micropolis 1015F5 or 1015F6 (as appropriate) plus mounting bracket and screw set from a Gemini dealer!
2. Disconnect the GM825 from the mains and microcomputer.
3. Remove the GM825 lid (held by two screws on each side).
4. Remove the drive blanking plate.
5. Remove the resistor pack from the new drive.
Set the drive select strap on the new drive to 'B'. (See above.)
6. Insert the new drive from the front in the same orientation as the existing drive.
8. Insert two screws from the bottom of the GM825 into the new drive.
9. Place the mounting plate across the top of the two drives and attach with four screws.
10. Plug the four pin PSU connector into the new drive. (Only one orientation is possible.)
11. Plug the 34-way connector onto the drive.
12. Replace the GM825 lid, with the ventilation slots to the front.
13. Reconnect to the mains and microcomputer.
14. Test the new drive. (Formatting a blank disk on the new drive and then using 'BACKUP' and/or 'PIP' will indicate basic correct operation.)

Operating the GM825.

On the rear of the GM825 are a mains plug, fuse and switch and a 34-way connector. The mains and 34-way connectors should be connected as described above. The mains switch is 'ON' when the bottom half is depressed. When this is done the LED on the front of the GM825 should light. If the LED fails to light then check the fuse on the rear of the unit. This should be a 20mm 500mA anti-surge type. Also check any further fuses and connections.

Each drive has an LED that indicates when the drive is active. It will come on when the drive is selected and will go out several seconds after the last disk access has taken place (the motors will also stop at the same time).

NOTE: If more than one drive LED illuminates at the same time, switch off the unit immediately - this usually means that the cable has been connected the wrong way round, and damage to the drives and GM809/GM829 may arise as a consequence of this.

Inserting diskettes.

1. Place the diskette in the drive slot with the write-protect notch uppermost, all disk labels on the right hand side of the disk, and with the oval read/write cutout pointing inwards.
2. Push the diskette firmly in as far as possible until it clicks into place.
3. Push the door flap firmly and slowly to the left, where it will stay. The drive motor will start briefly to ensure that the diskette is located properly.

Removing diskettes.

1. Ensure that the disk drive is not being accessed. (i.e. wait for the access LED to extinguish.)
2. Push the door flap to the left and release it. It will move to a central position.
3. Push the door flap to the right. This will partially eject the disk.
4. Withdraw the diskette from the drive and place in its sleeve.

Diskette Selection.

The GM825-1S and GM825-2S units use Micropolis 1015F5 drives. These drives are 80 track, 5.25", single-sided, soft-sectored, 96 TPI (tracks per inch) type, used in double density mode.

The GM825-1D and GM825-2D units use Micropolis 1015F6 drives. These drives are identical to the 1015F5 described above, but are double-sided.

Blank diskettes should be used which are appropriate for the above drives. If in doubt consult your Gemini dealer. The use of unsuitable diskettes may result in a high rate of data error, and in the case of cheap diskettes premature headwear may occur. Considering the value of the data to be stored on a diskette and the cost of replacement heads it is worth paying a little extra to ensure that the diskettes used are of good quality and of the correct kind.

Diskette format.

Because of the wide variety of different 5.25" disk drives available (single/double sided, single/double density, 48/96 TPI, soft/hard sectored etc.) there is no 'standard' format for storing the information on the diskette. With Gemini disk systems the format has been chosen to provide the best combination of speed of access and storage capacity. Details of the disk format are provided with the chosen operating system.

NOTE: The formats used for the GM825-1S/GM825-2S and GM825-1D/GM825-2D are identical, except that with the GM825-1D/GM825-2D it is extended onto a second side. Consequently disks can be exchanged between the two systems provided that the required files are contained on the first side of the disk.

Operating Systems.

Gemini can provide the CP/M operating system for all versions of the GM825. For Nascom owners an alternative operating system, Polydos, is also available. Consult your Gemini dealer for further details.